

IN THE CLAIMS:

1. (Currently Amended) A method of forming a semiconductor device feature, the method comprising:

providing a substrate, said substrate having a surface;

~~providing a substrate having~~ depositing a first layer formed thereon above said surface of
said substrate;

~~covering said substrate with~~ depositing a second layer of material on said first layer of
material;

implanting ions into said second layer of material to modify a structure of the material of
said second layer;

after depositing said first layer and said second layer of material, patterning said second
layer of material and said first layer ~~by photolithography~~ to form said
semiconductor device feature in said first layer; and

removing said patterned second layer of material, whereby a selectivity in removing said
patterned second layer is increased by the implanting of said ions.

2. (Original) The method of claim 1, wherein said ions are substantially inert ions.

3. (Original) The method of claim 1, wherein said ions are at least one of argon
ions, xenon ions, germanium ions and silicon ions.

4. (Original) The method of claim 1, wherein the ion dose is in the range of
approximately 1×10^{13} to 5×10^{15} ions/cm².

5. (Original) The method of claim 1, wherein the ion energy is in the range of approximately 5-80 keV.

6. (Currently Amended) The method of claim 1, wherein said second layer of material is an anti-reflective coating layer.

7. (Currently Amended) The method of claim 1, wherein said second layer of material is comprised of an inorganic material.

8. (Currently Amended) The method of claim 1, wherein the material of said second layer of material is one of silicon nitride and silicon reacted nitride.

9. (Original) The method of claim 1, wherein a dimension of the device feature in one direction is 100 nm or less.

10.-21. (Canceled)

22. (Currently Amended) A method, comprising:
providing a substrate, said substrate having a surface;
~~providing a substrate having~~ depositing a first layer of material ~~formed thereabove~~
comprised of a gate electrode material above said surface of said substrate;
depositing a second layer of material ~~above~~ comprised of an anti-reflective coating
material on said first layer of material; and

after depositing said first layer and said second layer of material, implanting ions into said second layer of material to modify a structure of the material of said second layer of material and thereby increase an etch selectivity of said second layer of material relative to said first layer of material.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Previously Presented) The method of claim 22, wherein said ions comprise at least one of argon ions, xenon ions, germanium ions and silicon ions.

27. (Previously Presented) The method of claim 22, wherein said ions are substantially inert ions.

28. (Previously Presented) The method of claim 22, wherein an implant energy of an ion implant process performed to implant said ions is selected such that the structure of the material comprising the second layer of material is modified substantially throughout an entire thickness of said second layer of material.

29. (Previously Presented) The method of claim 22, wherein an implant energy of an ion implant process performed to implant said ions is selected such that said implanted ions are

substantially located adjacent an interface between said first layer of material and said second layer of material.

30. (Currently Amended) The method of claim 22, further comprising, after implanting said ions, performing at least one etch process to define a feature in said first layer of material.

31. (Previously Presented) The method of claim 30, further comprising performing an etching process to remove a portion of said second layer of material above said feature in said first layer of material.

32. (Currently Amended) A method, comprising:
providing a substrate, said substrate having a surface;
~~providing a substrate having~~ depositing a first layer of gate electrode material ~~formed thereabove~~ above said surface of said substrate;
depositing a second layer of material comprising an anti-reflective coating material ~~above~~ on said first layer of gate electrode material; and
after depositing said first layer and said second layer of material, performing an ion implant process to implant ions into said second layer of material to modify a structure of the material of said second layer of material and thereby increase an etch selectivity of said second layer of material relative to said first layer of gate electrode material, wherein an implant energy of said ion implant process is selected such that the structure of the material comprising the second layer of

material is modified substantially throughout an entire thickness of said second layer of material.

33. (Previously Presented) The method of claim 32, wherein said ions comprise at least one of argon ions, xenon ions, germanium ions and silicon ions.

33. (Previously Presented) The method of claim 32, wherein said ions are substantially inert ions.

35. (Currently Amended) The method of claim 32, further comprising, after implanting said ions, performing at least one etch process to define a feature in said first layer of material.

36. (Previously Presented) The method of claim 35, further comprising performing an etching process to remove a portion of said second layer of material above said feature in said first layer of material.

37. (Currently Amended) A method, comprising:
providing a substrate, said substrate having a surface;
~~providing a substrate having~~ depositing a first layer of gate electrode material ~~formed thereabove~~ above said surface of said substrate;
depositing a second layer of material comprising an anti-reflective coating material ~~above~~ on said first layer of gate electrode material; and

after depositing said first layer and said second layer of material, performing an ion implant process to implant ions into said second layer of material to modify a structure of the material of said second layer of material and thereby increase an etch selectivity of said second layer of material relative to said first layer of gate electrode material, wherein an implant energy of an ion implant process performed to implant said ions is selected such that said implanted ions are substantially located adjacent an interface between said first layer of material and said second layer of material.

38. (Previously Presented) The method of claim 37, wherein said ions comprise at least one of argon ions, xenon ions, germanium ions and silicon ions.

39. (Previously Presented) The method of claim 37, wherein said ions are substantially inert ions.

40. (Currently Amended) The method of claim 37, further comprising, after implanting said ions, performing at least one etch process to define a feature in said first layer of material.

41. (Previously Presented) The method of claim 40, further comprising performing an etching process to remove a portion of said second layer of material above said feature in said first layer of material.